

## WILDLIFE MANAGEMENT UNIT 28 - PANGUITCH LAKE

### Boundary Description

**Iron, Kane, and Garfield counties** - Boundary begins at Highway SR-14 and Highway US-89; then north on US-89 to Highway SR-20; then west on SR-20 to Interstate 15; then south on I-15 to Highway SR-14; then east on SR-14 to US-89 and beginning point.

### Management Unit Description

Total useable mule deer and elk range on this unit is 540,457 and 402,473 acres respectively (DWR 1998). Mule deer range consists of 63% summer and 37% winter range, while elk range is 78% summer and 22% winter range. Guinta (1982) presents a complete description of the summer and winter range on the Panguitch Lake unit. The winter range on the eastern portion of the unit is higher in elevation and experiences colder temperatures than on the Parowan side; and consequently, far fewer deer winter on the Panguitch side. Key areas that were identified on the winter range on the eastern side of the unit include the following: pinyon-juniper woodlands south of Panguitch, seeded range at the north end of Upper Bear Valley, the mixed brush type in Buckskin Valley, and the pinyon-juniper chainings in the Three Creeks drainage. These study sites range in elevation from 7,100 to 7,600 feet and represent key areas within the limits of normal winter range on the east side. The only severe winter range available on the unit is located on the pinyon-juniper slopes below the Hurricane Cliffs and on the sagebrush flats that extend from the slopes to I-15. During severe winters the deer on this herd unit are packed into the narrow area between the cliffs and the interstate. Habitat availability is effectively reduced by 80% during these severe winters. The key areas that were identified by the local interagency committee for this area include the Wyoming big sagebrush type west of Swayback Knoll, a Wyoming big sagebrush type in the mouth of Cottonwood Creek, a pinyon-juniper chaining east of Paragonah, a big sagebrush/ pinyon-juniper ecotone in Grass Valley south of Parowan, and a mountain big sagebrush/pinyon-juniper ecotone in Elliker Basin. The importance of each of these areas for deer has increased over the years as sagebrush flats have been converted to sprinkler irrigated agricultural lands; mainly from Highway U-20 to Parowan. Due to depredation problems, deer fences were constructed around many of these fields. In addition, the deer-proof fence along the I-15 corridor severely limits the winter range available to deer on the west side of the freeway. Urbanization of former winter range is continuing, especially in the Fiddler's Canyon area north of Cedar City. Of particular concern is the fact that much of the severe winter range from U-20 to Cedar City is privately owned. Additional habitat losses are to be expected on these privately owned parcels of land. Summer range is not considered a limiting factor for this deer herd. Summer range on the northern portion of the unit generally lies between 8,000 and 9,000 feet and consists largely of gentle rolling terrain. Summer ranges on the south side of the unit reach elevations of over 10,000 feet bordering Cedar Breaks National Park.

### Livestock Grazing on Key Areas

**The following discussion comes from the 1998 Range Trend Report and grazing information was current in 1998. Actual dates and numbers of grazing animals may have changed since.**

#### Eastern Portion - Normal Winter Deer Range

The Three Creeks study site is located in the USFS Three Creeks Cattle Allotment. A rest-rotation grazing system is used to manage livestock on this unit. The allotment is grazed from 6/1 to 10/15, with use on the study site occurring during the spring. The Upper Bear Valley site is located within the USFS Red Creek Cattle Allotment. This area was grazed by sheep and cattle prior to 1940. Since then, cattle have used the area exclusively. A deferred-rotation grazing system is used to manage livestock on the allotment. The season of use is from 6/16 to 10/15. The Buckskin Valley site is located in the BLM administered Buckskin

Mountain Allotment. The unit is grazed annually during the late spring by sheep and cattle. No grazing system is in use. The active preference for livestock has been set at 582 AUMs.

#### Western Portion - Severe Winter Deer Range

The Swayback Knoll site lies within the BLM, Bone Hollow Cattle Allotment. Recently, a 3 pasture rotation system has been implemented on this unit. This is one of the few allotments in the area that permits winter grazing on crucial deer winter range. The Paragonah study site is in an unallotted area of BLM land. Use by cattle does occur since forage production has been enhanced by an old chaining and seeding project. No monitoring of livestock use is carried out by BLM on this area. The Cottonwood site is located in the same allotment as the Upper Bear Valley site. This site is located in a unit that is grazed during the spring in most years.

The Grass Valley study is located in the P-Hill Allotment and is used by cattle from spring to mid-summer. The allotment is used season-long on an annual basis with no provision for deferred or rested pastures. The Elliker Basin study is located on DWR land which was acquired by way of a trade from the BLM.

#### High Elevation - Summer Range

The summer range sites, Red Desert and Little Valleys, are located in the Red Desert and Little Valleys Cattle Allotments. Both of these studies were suspended in 2003 and replaced by other studies. Both areas were grazed by sheep and cattle prior to 1939. Sheep use continued until 1947 in the Red Desert and until 1973 in Little Valleys. Cattle are managed on a deferred-rotation system in both allotments. The season of use runs from 7/6 to 9/20 on the Red Desert Allotment and from 6/1 to 10/15 in Little Valleys allotment. Suitable range appears to be twice as productive on the Little Valleys Allotment (5 acres/AUM) than on the Red Desert Allotment (11 acres/AUM). Asay Knoll, which was also suspended and replaced in 2003, occurs on the large Uinta Flat burn. It is located within the Buck Knoll pasture of the Asay Knoll Grazing Allotment. This area is allotted for 266 cattle for about one month beginning on June 16th. They are then moved to another pasture.

#### Herd Unit Management Objectives

The objective for this unit is to maintain winter deer herd size of 8,500 animals. Herd composition calls for 15 bucks/100 does with 30% of the bucks being 3-point or better. To achieve this level of harvest it will be necessary to maintain the amount of acreage providing severe winter deer range habitat on the west side of the unit (approximately 44,500 acres). As winter range habitat is lost to other land uses on private land, it will be necessary to increase the carrying capacity of key areas on public lands. Elk management objectives call for a target winter herd size of 900 animals with a bull to cow ratio of 20:100. At least half of the bulls are to be 2 ½ years of age or older. A more detailed discussion of deer and elk herd unit objectives can be found in the Division's big game management plans.

#### Trend Study Description

Range trend studies were initially established in 1987 and resurveyed in 1992, 1998, and 2003. Two additional studies were established in 1998 in the Sheep Hollow area south of Panguitch, and 5 studies were established in 2003 to replace 4 of the original trend studies that were suspended.

## SUMMARY

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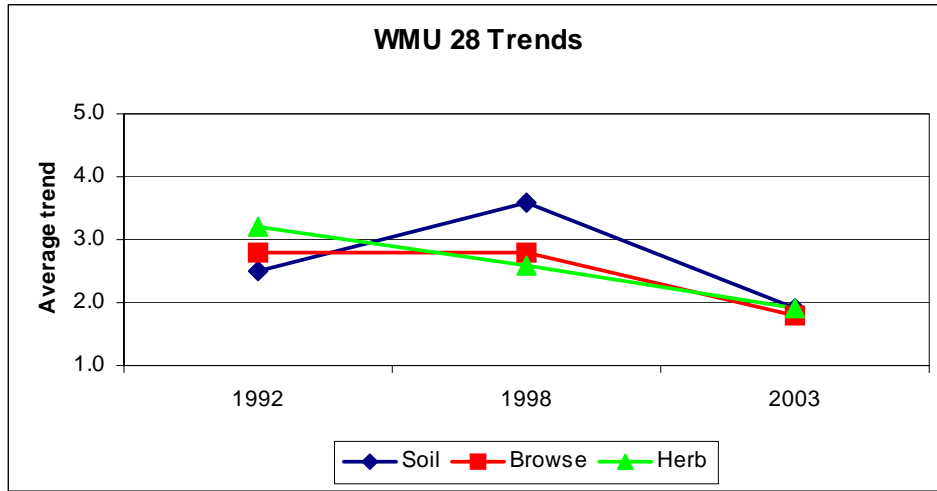
Fifteen trend studies were read in the Panguitch Lake unit in 2003. Eight of these were established in 1987 with rereads in 1992, 1998, and 2003. Two studies, Sheep Hollow East (28-15) and Sheep Hollow West (28-14), were established in 1998 and resurveyed in 2003. Four studies were suspended in 2003 including Panguitch (28-2), Little Valleys (28-9), Red Desert (28-10), and Asay Knoll (28-13). These sites were suspended as they no longer have values of critical big game ranges and were replaced by studies at Assay Bench (28-16), Sidney Valley (28-17), and Shakespeare Hollow (28-18). Two new studies, DD Hollow (28-19) and South Canyon (28-20), were established in 2003 to provide baseline data for future prescribed burns on big game winter ranges.

The majority of the range trends were downward for all categories (soil, browse, and herbaceous understory) in 2003. Soil and herbaceous trends were downward on 7 and 6 sites that were resurveyed in 2003 respectively, while the browse trend was downward on 9 of the 10 sites resampled. Downward soil trends were the result of increased bare soil and a decline in vegetation and/or litter cover which increases erosion potential. Downward herbaceous trends resulted from a decline in desirable perennial grasses and forbs due largely to drought conditions prior to and including 2003. Sum of nested frequency of perennial grasses declined on 8 of the 10 studies in 2003, and perennial forbs had lower sum of nested frequency values on 7 of the 10 sites. Surprisingly, cheatgrass had lower nested frequency and cover values on only 4 of the 10 sites in 2003. Downward browse trends resulted from key browse species showing declines in population density, increases in percent decadence and the proportion of these classified as dying, and decreased reproduction. Sagebrush species (mountain big sagebrush, Wyoming big sagebrush, and black sagebrush) showed higher decadence on 8 of the 10 sites that were reread in 2003 while recruitment by young sagebrush plants declined on 9 of 10 sites. Bitterbrush showed increased decadence and lower recruitment on all 4 of the studies it was sampled on in both 1998 and 2003. These negative trends in browse populations are largely due to drier conditions in 2003 compared to the previous reading in 1998 which occurred during a wetter precipitation cycle.

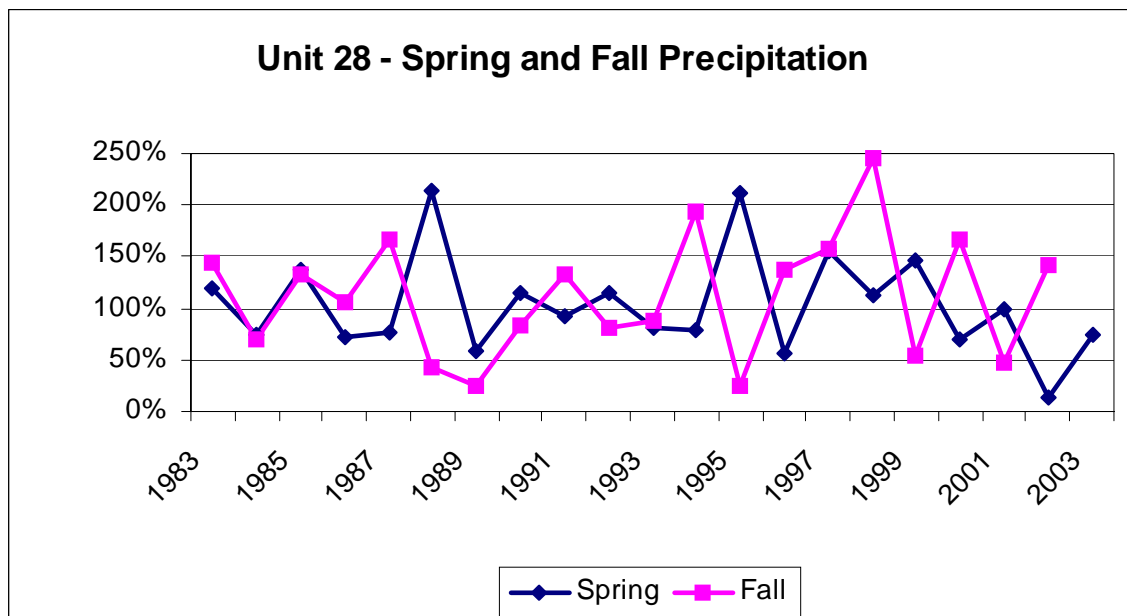
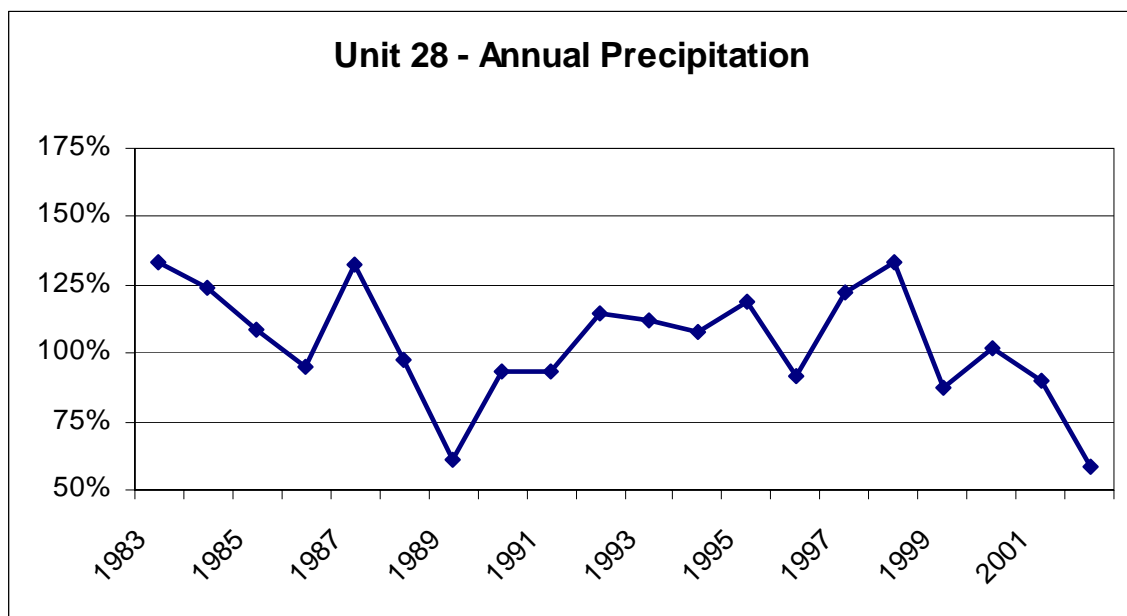
Soil and vegetation trends are largely driven by precipitation. As a whole, Utah has been in a drought for the past 5 years, and some of the areas within the Panguitch Lake unit reflect this. Weather station data at 3 locations was analyzed to look at precipitation trends in the unit since range trend studies were established in 1987. These stations occur at Panguitch, Hatch, and the Cedar City Airport (Utah Climate Summaries 2004). Precipitation data was averaged over the 3 weather stations listed above, and data indicate that from 1987-2002, total annual precipitation was normal or above normal in all years except 1989, 1999, and 2002 (see precipitation graphs below). Perhaps more important than total annual precipitation is seasonal distribution. Data were analyzed for both spring (April-June) and fall (September-November). Spring precipitation is important for cool season perennial grasses and forbs, as well as shrub populations, as these species initiate growth during the spring. Weather data indicate that spring precipitation in the Panguitch Lake unit was below normal in 1987, 1989, 1993-94, 1996, 2000, and 2002-03 (see precipitation graphs below). Fall precipitation totals have oscillated back and forth between wet and dry cycles with the driest period occurring in late 1980's and early 1990's with other dry years in 1995, 1999, and 2001. For this report, the period from 2000-2003 is the focus as it would most effect current range trends. Below normal spring precipitation in 2000 and 2002-03 is a primary reason for the decline in perennial grasses and forbs in 2003. Without good spring precipitation, cool season perennials are not able to sustain high productivity as their primary growing season occurs during the spring and early summer. Increased decadence and lower reproduction in sagebrush and bitterbrush populations are also linked to the dry conditions during the past several years. It is likely that these negative trends will continue until precipitation patterns improve.

# Average Trends – WMU 28 Panguitch Lake

	1991	1998	2003
Soil	2.5	3.6	1.9
Browse	2.8	2.8	1.8
Herb	3.2	2.6	1.9
	12 sites	12 sites	10 sites



Precipitation graphs for the Panguitch Lake unit. Data is percent of normal precipitation averaged for 3 weather stations at Panguitch, Hatch, and the Cedar City Airport (Utah Climate Summaries 2004).



# Trend Summary

	Category	1987	1992	1998	2003
28-1 Three Creeks	soil	est	3	3	1
	browse	est	5	3	1
	herbaceous understory	est	5	3	1
28-3 Bear Valley	soil	est	2	4	1
	browse	est	2	3	1
	herbaceous understory	est	3	3	2
28-4 Buckskin Valley	soil	est	3	4	3
	browse	est	2	2	2
	herbaceous understory	est	4	1	1
28-5 Swayback Knoll	soil	est	1	4	2
	browse	est	3	2	2
	herbaceous understory	est	5	2	3
28-6 Cottonwood	soil	est	2	4	2
	browse	est	3	3	2
	herbaceous understory	est	3	2	3
28-7 Paragonah	soil	est	2	5	3
	browse	est	3	2	2
	herbaceous understory	est	1	3	1
28-8 Grass Valley	soil	est	3	4	2
	browse	est	2	2	2
	herbaceous understory	est	3	4	3
28-11 Elliker Basin	soil	est	3	3	3
	browse	est	1	4	1
	herbaceous understory	est	3	3	3

(1) = down, (2), slightly down, (3) = stable, (4) = slightly up, (5) = up  
 (est) = established, (n/a) = no trend, (susp) = suspended, (NR) = not read

	Category	1998	2003
28-14 Sheep Hollow West	soil	est	1
	browse	est	2
	herbaceous understory	est	1
28-15 Sheep Hollow East	soil	est	1
	browse	est	3
	herbaceous understory	est	1
	Category	2003	
28-16 Asay Bench	soil	est	
	browse	est	
	herbaceous understory	est	
28-17 Sidney Valley	soil	est	
	browse	est	
	herbaceous understory	est	
28-18 Shakespeare Hollow	soil	est	
	browse	est	
	herbaceous understory	est	
28-19 DD Hollow	soil	est	
	browse	est	
	herbaceous understory	est	
28-20 South Canyon	soil	est	
	browse	est	
	herbaceous understory	est	

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